

REMARKS

By the present amendment, independent claim 1 has been amended to further clarify the concepts of the present invention. In particular, claim 1 has been amended to further define property (a-4) by defining that copolymer (A) has solubles contained at 20°C or lower, determined by cross fractionation chromatography (CFC), of at least 1.2% or less. Support for this amendment to claim 1 may be found, among others, on line of page nine of the subject specification. Entry of the above amendment is respectfully requested.

Initially, applicants wish to make of record the telephone interview conducted between Examiner Cheung and the undersigned on May 15, 2006. During the interview, the examiner further explained his position concerning the outstanding art rejection, as was set forth in the Advisory Action, that the presentation made in the recently submitted Declaration did not sufficiently demonstrate the patentability of the subject claims over the disclosure of the cited patent.

In particular, it was asserted by the examiner that copolymers (i) to (iii) of the Declaration which correspond to the Chatterjee patent (copolymers A, D and E of the Declaration) do not significantly differ from the compositions as claimed. Specifically noted were Tables C and D where copolymers A, D and E differ only in several properties. The opinion was further expressed that the values for these properties differ only slightly from

the maximum value claimed (reproduced in the heading of these Tables) and that the differences could be considered insignificant and as being within experimental error.

In addition, the examiner also noted that the copolymer according to the prior art differed from the claimed copolymer in that the solubles at 20°C or lower were above the maximum amount as claimed. Further, it was noted that copolymer E according to the prior art differed from the claimed copolymer in that the weight average molecular weight of the solubles at 40°C or lower were above the maximum amount as claimed. From this observation, it was alleged that copolymers having the properties as claimed could be extrapolated from the specific examples of the Chatterjee patent.

In response to the above, it was the position of the applicants herein that there are significant differences in properties for the films according to the prior art (from copolymers A, D and E) from the films made from the copolymers according to the invention in Example 1 as set forth in Tables E, F and G of the Declaration. In response, the examiner expressed the opinion that variations in processing conditions in forming the films could explain the differences in resultant properties. After directing the attention of the examiner to paragraph (15) of the Declaration which stated that films were processed in the same manner, he agreed that his position in this regard was not tenable and therefore relied upon the positions taken previously. It is desired to thank the examiner for the courtesies extended during the interview.

In the most recent Office Action, all of the pending claims again were rejected under 35 USC § 102(b) as being anticipated by, or alternatively, under 35 USC 103(a) as being obvious over, the patent to Chatterjee. In making this rejection, it was alleged that the Chatterjee patent teaches a resin composition for metallized films formed of components which fall within the scope of the noted claims. In so doing, it was asserted that at least some of the properties (a-1) through (a-6) of the propylene random copolymer (A) and the recited properties for polyethylene resin (B), although not specifically disclosed, would be inherent in the compositions according to the cited patent. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

The subject invention relates to a polypropylene-based resin composition for metallized films where the composition comprises, among other things, a propylene random copolymer (A) produced in the presence of a metallocene catalyst, which has the properties (a-1) to (a-6) as now recited in claim 1. As mentioned above, independent claim 1 has been amended herein to further clarify the concepts of the present invention by defining property (a-4) in that copolymer (A) has solubles contained at 20°C or lower, determined by cross fractionation chromatography (CFC), of at least 1.2% or less. In this regard, it is to be recognized that, in accordance with the concepts of the present invention, it is extremely important that copolymer (A) satisfies all of requirements (a-1) to (a-6). In

other words, if even one of requirements (a-1) to (a-6) is not satisfied, the resultant composition is not suitable as a material of a film the surface of which is to be metallized.

Among other things, the properties of the subject resin compositions which are important for a material of a film are greatly affected by the content and molecular weight of the solubles at a specific temperature. For example, when a propylene random copolymer contains too large of an amount of solubles at 20 °C or lower and the solubles have a molecular weight above  $6.0 \times 10^4$ , the copolymer has a low crystalline component and is difficult to evaporate with the result that it may remain on the metallized surface to possibly exert adverse effects on the printability or lamination of the metallized surface. When such a copolymer contains too large of an amount of solubles at 20°C or lower and the solubles have a molecular weight below  $6.0 \times 10^4$ , the copolymer tends to evaporate during the molding step to excessively emit fumes as is set forth on line 5 from the bottom of page 9 to page 10, line 3 of the subject specification.

The fact that the properties of the subject resin compositions as defined by the present claims are greatly affected by the content of solubles at 20 °C is also evident from the previously submitted Declaration. More particularly, when copolymer (A) contains at 20 °C solubles in an amount higher than 1.2 wt%, the resultant composition yields a primary film with unsuitable properties and the resultant metallized film also shows poor properties. Attention is specifically directed to Example A in the Declaration in terms of

"blocking properties" set forth in Table E and "wound condition" in Table F as well as "adhesion properties" and "peel strength" as set forth in Table G. For easy reference, Tables C to G of the Declaration are attached hereto as Tables C' to G', respectively, each including data of Examples 1 and 5 for comparison purposes.

It is to be particularly noted that each value (a-1) through (a-6) as defined in the present claims clearly has criticality. That is, even though the actual (measured) value may only slightly different from the upper (or lower) limit of the range of value set forth in the present claims, the properties of the resultant composition are greatly affected. As is apparent from Example A in the Declaration, the difference between the actual content (2.1 wt%) of solubles in copolymer (A) at 20 °C and the upper limit 1.2 wt% (by the above-mentioned amendment) of the solubles content is numerically not large (only 0.9 wt%), it is of significance that the properties of the primary film as well as the metallized film are extremely deteriorated. On the other hand, as apparent from the results of Examples 1 and 5, when the content of solubles in copolymer (A) at 20 °C is 1.2 wt% or less (even though the content is as high as 0.9 wt%, as in Example 5), the resultant composition provides a primary film and metallized film with excellent properties.

It is submitted that the above evidence clearly demonstrate the criticality of values (a-1) through (a-6) as recited in the present claims. Therefore, the position of the examiner that the difference in values of Tables in the Declaration is insignificant and within

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experimental error is completely in error. Consequently, it submitted that a polypropylene-based resin composition for metallized films which includes copolymer (A) as defined in amended claim 1 is not taught or suggested by the cited patent to Chatterjee.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) and allowance of claims 1, 3, 5-7, 9 and 11-12 as amended over the cited Chatterjee patent are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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Enclosures: Tables C' to G'



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Table C'

Example No.	MFR <sub>A</sub> (g/10 min.)	MI <sub>B</sub> /MFR <sub>A</sub>	Ethylene content (% by mol)	T <sub>p</sub> (°C)
A	7.0	2.86	4.4	145.0
D	6.3	3.17	5.9	139.9
E	8.1	2.47	6.0	137.9
1	6.1	3.28	2.7	134.8
5	7.7	2.60	5.0	124.0

Table D'

Example No.	Solubles contained at 20 °C or lower (wt.%)	Solubles contained at 40 °C or lower (wt.%)	Weight-average molecular weight of solubles contained at 20 °C or lower	Weight-average molecular weight of solubles contained at 40 °C or lower	PI
A	2.10	3.72	$2.7 \times 10^4$	$4.3 \times 10^4$	4.0
D	4.26	6.45	$2.9 \times 10^4$	$9.8 \times 10^4$	4.3
E	1.35	3.43	$5.3 \times 10^4$	$9.0 \times 10^4$	3.8
1	0	1.69	-	$0.7 \times 10^4$	3.2
5	0.90	2.89	$1.4 \times 10^4$	$1.3 \times 10^4$	3.1

Table E'

Example No.	Processability	Primary film		
		SWR mark	Haze	Outer appearances
			%	Blocking properties
A	○	3.4	○	800
D	○	3.2	○	1100
E	○	2.8	○	900
I	◎	2.5	○	500
5	○	2.3	○	600

Table F'

Example No.	Primary film		
	Tensile modulus	HS temperature	Wound condition
	MPa	°C	-
A	590	140	×
D	560	136	×
E	580	134	×
I	740	129	○
5	510	120	○

Table G'

Example No.	Metallized film (metallization suitability)				
	ΔG	Adhesion properties	Wetting tension	Peel strength	Wound condition
	%	-	dyne/cm	g/15 mm	-
A	50	×	36	70	×
D	50	×	32	30	×
E	50	×	37	100	×
I	40	○	40	125	○
5	50	○	39	120	○